DOCUMENT RESUME

ED 434 480 EF 005 431

AUTHOR Radakovich, Dan; Lindsay, Susan; Osborn, Bill
TITLE Johnson County Community College and Burlington Northern Railroad.
INSTITUTION Johnson County Community Coll., Overland Park, KS.
PUB DATE 1995-05-00
NOTE 21p.
PUB TYPE Reports - Descriptive (141)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Community Colleges; *Curriculum Development; *Partnerships in Education; *Professional Education; *School Business Relationship; Two Year Colleges
IDENTIFIERS *Johnson County Community College KS

ABSTRACT

In order to serve the educational needs of the business community and generate revenues, Johnson County Community College (Kansas) formed a partnership with Burlington Northern Railroad in which the railroad's training facility would be relocated on the college's campus. This report documents the development of that relationship, its purpose, and the program activities of the partnership. How this partnership was expanded to prepare people nationwide for positions with the nation's railroads is described, including its curriculum components, certification requirements, student options for completing the degree, and the railroad industry's needs. Concluding sections provide lists of sponsoring railroads and a partial list of educational institutions offering, or intending to offer, a railroad-related degree; also included are descriptions of various revenue and cost aspects of the partnership. (GR)

JOHNSON COUNTY COMMUNITY COLLEGE

AND

BURLINGTON NORTHERN RAILROAD

Dan Radakovich, Vice President for Academic Affairs, JCCC
Susan Lindsay, Education Consultant, National Academy of Railroad Sciences
Bill Osborn, Program Director, JCCC

May 1995

JOHNSON COUNTY COMMUNITY COLLEGE AND BURLINGTON NORTHERN RAILROAD

Johnson County is one of the eight counties that make up the greater Kansas City metropolitan area. The college, located in Overland Park, Kansas, is a single-campus district with a spring 1995 enrollment of 15,630 credit students and an additional continuing education enrollment of over 16,000 students. Johnson County Community College is the largest of the 19 Kansas community colleges and is a member of the League for Innovation in the Community College.

Charles J. Carlsen, president of JCCC, has always been an advocate for economic development as one of the main missions of good community colleges. He brought from Blackhawk College, his former campus, experience with community college and industry partnerships. In fact, the success of the relationships between Blackhawk and John Deere and other companies led Carlsen to establish the Johnson County Community College Business and Industry Institute at the JCCC campus in 1984 and to charge it with these operating goals:

- Serve the educational needs of business and industry in Johnson County;
- Generate revenues to offset the direct cost of the program and to generate a retained revenue stream that could be used to further assist the college; and
- Promote economic development in Johnson County by working with the various county governments and municipal chamber groups that were working on this issue.

With all of the educational institutions, private training agencies, and national seminar companies located in the greater Kansas City area, the college knew that the success of the Business and Industry Institute would have to be built on a reputation of serving business and industry with quality programming. The college also knew that if the Institute were to be successful, JCCC developers would have to anticipate future training needs and develop programs to meet those needs.

The college marshalled its resources to assist the institute. Its Office of Institutional Research conducted needs assessment studies on behalf of the institute, and the Television Operations and Word Production offices helped in product development. The college sought the area's best trainers and consultants, including those from its own staff. Finally, as the college worked with the local chambers of commerce to attract business, and later, as the college provided services to those businesses, the college gained a reputation for serving clients with high-quality programming. By the time Burlington Northern Railroad moved its operating department headquarters to Johnson County, it had

become standard practice for Johnson County Community College to approach the company with its services.

The Partnership

Burlington Northern Railroad is one of this nation's largest railroads, and an upcoming merger with Santa Fe Railroad will make it even larger. BN controls more than 25,000 miles of track in 25 states and two Canadian provinces. The railroad employs more than 32,000 employees and is an innovative leader in the industry.

In 1985, Burlington Northern Railroad operated a 14,000-square-foot training facility in the Argentine district of Kansas City, Kansas, near the rail yards. Mike Voelker, former BN director of Technical Training, learned of the services of the Johnson County Community College Business and Industry Institute and commissioned JCCC's Office of Institutional Research to assist him in needs assessment for several courses he was developing for electricians and welders. As the relationship between BN and JCCC developed, BN announced plans to build a larger training facility. Some initial and very preliminary discussion was started by Don Doucette, former JCCC director of Institutional Research, Don Goldenbaum, former director of the Business and Industry Institute at JCCC, and Mike Voelker about locating the center on the JCCC campus, which was about one mile west of the BN corporate headquarters. The new facility had to be flexible, cost efficient, and considerably larger than BN's Kansas City operation. Mike Voelker was looking for a good environment for students and staff, one conducive to learning, as well as a facility with some attractive financing. The idea of having a training facility on a college campus appealed to BN's Voelker, and the college and BN began to seriously discuss the feasibility of the BN center being located on the JCCC campus.

Originally, BN wanted the college to build the facility and then lease space to them. However, college counsel advised that JCCC would lose its tax exempt status if that were done and probably alienate every developer in Johnson County in the process. The college asked BN to build the facility and then donate it to the college; the railroad didn't want to do that. Yet, the idea was so appealing that the partners continued to pursue options. Finally, they approached the City of Overland Park about the possibility of issuing Industrial Revenue Bonds to finance the building, but they were not optimistic as the city had been reluctant to do so in the past. Because of the unique request, however, the City of Overland Park felt that no industrial competitive advantage would be offered and that, indeed, a great deal of economic development would ensue for Overland Park and Johnson County should Burlington Northern be granted the use of the bonds. The

city then issued $2.9 million in revenue bonds. The partnership between the City of Overland Park, Kansas, Johnson County Community College, and Burlington Northern Railroad called for a 52,000-square-foot facility to be built on the JCCC campus. Burlington Northern was to pay off the bonds over a ten-year period, subleasing approximately one-third of the space to the college at cost. After ten years, at which time the building would be paid, BN would donate it to Johnson County Community College. BN would be able to lease the building for three five-year periods after the college took possession. The Industrial Technical Center was occupied in January 1988. In June 1991, the partners agreed to expand the ITC, dividing construction costs as they had before.

The Purpose of the Partnership

While it would appear natural to ascribe the special educational developments that would accrue from the relationship with Burlington Northern as the most important reason for its location on the JCCC campus, the real purpose of the original partnership for JCCC was primarily to encourage local economic development and to provide a new non-tax revenue stream for the college. BN wanted high-quality teaching space--a real "educational" atmosphere--to train its staff at the most reasonable cost to the corporation. JCCC knew the economic development opportunities for the Johnson County area and for the college, and it hoped for future educational partnerships to develop. Those hopes for true educational partnerships, as well as financial goals, have been realized. JCCC and BN, under the auspices of the National Academy of Railroad Sciences, now cooperate to offer the A.S. degree in Railroad Operations with options in Railroad Maintenance of Way, Dispatching, Conducting, and Mechanics and an A.A.S. degree in Railroad Electronics.

Description of the Partnership

Burlington Northern Railroad and Johnson County Community College entered into an educational operating contract in 1986 to build, maintain, and instruct students from both organizations in the Industrial Technical Center (ITC). In recognition of the benefits to both parties, JCCC and BN agreed to share initial and ongoing expenses according to each organization's use of the facility and to provide services to each other at their actual cost.

The Program Activities of the Partnership

There are many ways that BN and JCCC now interact, some most unique and innovative, some that will have national impact. They both started with a willingness on the part of

the JCCC Board of Trustees to cooperate with business and industry in promoting economic development, as stipulated in both the college's original and its newly revised mission statements.

Organization and Staffing. Ed Butt, director of Technical Training for BN, directs a staff of 72 people on the Johnson County Community College campus. These individuals are the administrators, instructors, and support staff charged with serving the educational, travel, and lodging needs of more than 8,000 BN employees and approximately 3,000 employees of other railroads who come to the campus each year. Officially, these individuals are completely separate from the JCCC staff and organization, but are viewed as campus colleagues.

The JCCC Business and Industry Institute works directly with BN on a contractual basis to supply additional personnel for course development and other necessary support services and to provide contract training on a not-for-credit basis. JCCC has employed 29 employees who work directly for BN on this basis. These are JCCC employees who know that their employment is contingent on continued BN funding.

In addition, BN has contracted for some credit instruction as well and two cost centers, one in Railroad Operations and one in Railroad Engineering, have been established to handle that instruction. Each is directed by a program director who schedules the classes under the supervision of the assistant dean who reports to the dean of Instruction. The program directors work directly with program managers on the BN staff. In that way, only policy issues have to be addressed by the deans. There has also always existed a close communications link between the BN director and the two vice presidents of the college.

The college has employed nine full-time instructors to conduct credit classes for Burlington Northern Railroad employees in welding, maintenance of way, and electronics. These instructors are JCCC employees and report to the JCCC program directors.

Space. JCCC and BN have partnered with the City of Overland Park, Kansas, to build two projects totaling 118,655 square feet of space. The National Academy of Railroad Sciences occupies approximately 60 percent of the total space for its programming. The buildings and grounds are maintained by JCCC but the costs are reimbursed by BN in proportion to its use. Moveable equipment is supplied by each partner. The lease arrangements provided BN with low-cost space and an atmosphere conducive to education and allowed JCCC to construct needed space for its programs.

Burlington Northern employs a hands-on approach to training, and this is reflected throughout the center. The staff has designed and constructed many one-of-a-kind "simulators" that allow the student real-world experience while working under the guidance of highly trained instructors. The following areas are developed in the center:

- The Locomotive Engineer Training section provides the railroad with the safest, most qualified locomotive engineers in the industry. At the training center, students receive in-depth training in locomotive mechanical, electrical, and air brake systems; train handling techniques; train track dynamics; and operating rules.

- The Signal Training section is responsible for developing and delivering specialized technical training for signal employees. These individuals install, maintain, and repair the devices that regulate the safe movement of rail traffic and provide protection for the public at highway crossings.

- The Mechanical Training section is responsible for training craftsmen to repair and maintain diesel electric locomotives and freight cars safely, efficiently, and in a quality manner.

- The Communications Training section teaches both apprentice and journeyman electronic technicians to install, maintain, and repair BN's two-way communication devices, telecommunications, video identification and data handling systems. The students receive instruction in a predetermined mixture of hands-on, laboratory workshop courses. A special electronics training program has been developed with JCCC to enhance entry to these jobs.

- The Maintenance of Way Training section is responsible for training those employees who build, maintain, and repair the very foundation of the railroad, the right of way. Training in this area addresses the inspection, maintenance, repair, and construction of railroad bridges, buildings, and track.

- The Dispatcher Training section prepares the individuals who control the movement of the various trains on the track system.

- The Conductor Training section prepares individuals to control the train and assist the locomotive engineer. This experience is a prerequisite for becoming an engineer on most railroads. BN maintains a siding for hands-on experience for these trainees as well.

- The Terminal Operations Training section is the latest addition to the center.

- In addition, the center has an administrative section that provides the clerical, scheduling, and budgeting support vital for the smooth and efficient operation of the entire training center. There is also an audiovisual section that supports and enhances the instructor's teaching capabilities by assisting in the development, production, and delivery of training material. Virtually every document, slide, and video program the student experiences at the center bears the mark of this section.

- For years, the center has led the railroad industry in Computer-Based Training (CBT). Through the use of interactive video, CBT has the ability to teach many aspects of the complex and highly technical skills required of railroad employees. The initial CBT effort was directed toward railroad operating rules, which had traditionally been learned by memorization. CBT, however, can concentrate in a one-on-one environment on the application of these rules. By presenting hypothetical situations, the student's ability to apply the meaning of the rule can be evaluated. With CBT, the entire training function can be expanded to locations across the railroad.

- The engineer training classroom accommodates up to 24 students. It contains various hands-on and demonstration equipment, including a block signal simulator, an engineer control stand, a 26C air brake simulator, a 50-foot car air brake rack (equipped with an ABDW valve and an empty/load braking ratio system), and an 85-foot car (equipped with an ABD valve and an A-1 reduction relay valve).

- The dispatcher classroom accommodates up to 12 students and contains two CTC simulators, a lever, and a keyboard monitor system.

- The mechanical/electrical lab accommodates up to 16 students; however, classes are limited to 12. The lab contains an EMD electrical cabinet simulator and a GE electric cabinet simulator.
- The machinist lab accommodates 16 students and is equipped with a mechanical bay, a two-ton overhead hoist, two four-cylinder diesel engines, and a locomotive air brake rack. The EMD four-cylinder diesel was developed from a 20-cylinder block. BN took out the middle 16 assemblies and put it back together. It now has everything that the full block had, but takes up less space.

- The GE engine was developed from a 16-cylinder block. BN says it can do anything in the lab normally done in a diesel repair facility, from pulling assemblies to building a gear train. BN provides both theory and hands-on experience in a classroom

environment. The locomotive air brake simulator supplies hands-on troubleshooting training for machinists.

- The communication classroom/lab provides the equipment necessary to train communication electronic technicians. It contains a fully operating microwave simulator with all of the types of microwave radios used by BN. An attenuator is used to create the open path for the microwave transmission. A screen room is required to offer hands-on, two-way radio repair instruction.

- The freight car carmen training classroom accommodates 15 students. It contains eight car air brake racks, each equipped with a different brake valve, and a full scale freight car. It also has a single car test rack and a truck-mounted brake cylinder simulator. Immediately outside the freight car training classroom is a 78-foot section of track containing a freight car truck and 14 pairs of wheels. All of this equipment has various defects for student inspection. The freight car truck alone has 71 different defects.

- The signal lab is used for training both apprentice and journeymen signal maintainers. It contains a CTC simulator with an electric lock switch and two operating power switches. The ABS simulator containing the wayside signal equipment is found in 35 miles of automatic block signal territory. The lab also contains highway crossing and interlocking simulators.

The knowledge and skills required to serve on train crews cannot be learned entirely in the classroom. Recognizing this, the National Academy of Railroad Sciences has made a substantial investment in locomotive simulator technology to provide the hands-on experience essential to the safe operation of trains.

Simulators offer top-quality training without the cost, damage, and logistical problems of more traditional approaches to engineer training. Uniquely, simulators allow engineers to practice skills and enhance their abilities to deal with abnormal and dangerous circumstances safely and without interrupting operations.

The academy maintains six stationary and one full-motion simulator. Four of the stationary simulators are equipped with half cabs, two SD-40 and one each SD-60 and SD-70 models. These simulators are also equipped with computer-generated image software and projection systems, the same technology as is used to teach military and airplane operations. Powerful graphics processors present students with realistic track configurations and life-like scenery. Computer-generated images can be altered to show

conditions such as night operations, poor visibility in bad weather, and other situations that can not be shown on conventional film or videotape.

All simulators used at BN's training facility actually perform just like the equipment they simulate. To accomplish that with the electrical cabinets, BN had to add a computer and a programmable controller, which provide all of the information the cabinet needs to make it think it's in an operating locomotive.

Some may believe a simulator is second best, a replacement when the real thing is not available. BN says just the opposite is true--a simulator is better than the real thing. The GE cabinet will do everything that one in a locomotive will do and more. BN can accommodate up to 16 in this classroom; a real train can accommodate one person. There are more than 100 faults built into the cabinet for training purposes that can be turned off or on.

In the ITC, Johnson County Community College has space for its CAD, engineering, and electronics programs along with eight general purpose classrooms, offices, and the campus warehouse. In addition to space in the Industrial Technical Center as expanded, the college also built a welding facility to provide training for BN employees. Actual track is brought to the center for repair by the welders. Once repaired, it is returned to the railroad for use on the line. This approach was again in keeping with the railroad's hands-on philosophy.

Business and Industry Institute. As discussed earlier, JCCC has been commissioned by BN to assist in course development and support. Twenty-nine individuals have been employed to develop the CBT programs for the railroad. The JCCC Business and Industry Institute prides itself on meeting expressed need from industry in its service area, and BN uses the institute as an added resource when feasible.

Economic Development. Burlington Northern Railroad expects to train approximately 12,000 employees in the Overland Park facility in the 1994-95 academic year. Those students will comprise 20,500 student weeks of training (number of students x weeks on campus), which yields 110,000 room nights for the local hotels and motels. When one calculates travel and food costs, the economic impact for Johnson County is substantial. The Burlington Northern Technical Training Center operating budget for 1994 was over $20,000,000. Applying the multiplier of $2.50 for each dollar spent in the area, the economic benefit to the area would exceed $40 million.

Credit Instruction. The first credit courses offered as part of the partnership with BN were in welding. JCCC had assisted in course development and competency assessment

as part of the original contract with BN. When Burlington moved to the campus, the college began to offer that training. Track welding is somewhat unique; therefore, BN sent our staff to the field to learn even more about the process. The college then offered credit instruction for BN in electronics, hydraulics, pneumatics, and construction and bridge repair.

The electronics program was developed so that students could train while at home. Students came to the JCCC campus for six weeks over an 18-month period and did the rest of the work on computers at home. They communicated daily with an instructor via modem. Fifteen of these individuals from all over the country have just completed the degree requirements for that program.

The Associate Degree in Railroading. As Burlington Northern's business grew, it suddenly had to expand its workforce to keep up with demand. The college had always wanted an entry into that job market and approached BN's director, Ed Butt, about the possibility of working together to offer a program. He was supportive of a joint venture between the college and the railroad to expand the opportunity for railroad training and retraining and to initiate the world's first associate degree program in railroad occupations.

With Mr. Butt's support, JCCC and BN initiated a national center for railroad training and education. This center, the National Academy of Railroad Science (NARS), provides the training stipulated in the Rail Safety Improvement Act of 1988 for engineer certification. In addition, NARS offers training in maintenance of way, train conducting, communications and customer service, signal training, dispatcher training, and mechanical training for machinists, electricians, and carmen. Individuals who are not presently employed in railroading can now gain the necessary educational credentials and secure employment with railroads. Burlington Northern has taken the lead here and has allowed the college to offer certificate and degree programs in dispatcher training, conductor training, and maintenance of way training.

Evolution into a National Partnership

The college and Burlington Northern didn't stop there. They recognized the need for a wider distribution, a national program, to prepare people for positions with the nation's railroads.

Definition and Purpose. The associate degree in railroading is a two-year associate of science or associate of applied science degree that prepares the graduate for a career in

railroad operations (customer service, conductor and yard crews, dispatching, locomotive engineer, maintenance of way, mechanical, signal systems, system electrical, and telecommunications). The degree is offered by community and technical colleges and universities not to compete with railroads' internal technical training efforts or with four-year institutions' management training programs but to produce a pool of graduates from which all railroads can hire. Secondarily, it offers railroad employees opportunities to broaden and update their skills.

Curriculum Components. The curricula leading to the degree meet traditional distribution requirements for two-year vocational/technical college programs. Nearly half of the requirements are general education courses, including composition, technical math and physics, social science, and speech. Another quarter are industry-specific courses in railroad history, operations, safety, quality, and environmental awareness, and technical career options and responsibilities. These were developed by teams of railroad experts and college educators and are supplied to colleges that offer the degree. For a general degree in railroad operations, students use the fourth semester to complete business- and technical-related courses such as data processing, supervision, construction, and engineering.

For degrees with emphases in crafts such as dispatching, conductor service, maintenance of way, or locomotive or freight car mechanical systems, students can complete rigorous technical training, much of which is laboratory-based, at colleges equipped to offer such training. Currently, the National Academy of Railroad Sciences offers craft-specific options. Other organizations may implement them in the future.

Certification Requirements. Institutions that offer the degree may obtain industry certification for their programs. To apply for certification, an institution must have education as its principal activity, be legally authorized to operate as an educational institution, be accredited by one of the U.S. regional or Canadian provincial accrediting bodies, intend to or offer a degree program with a concentration in railroading which includes the supplied railroad-specific college courses and conforms to the curriculum requirements, demonstrate the need for associate degree graduates in its service area, and be authorized in writing to apply by the chief executive officer of the institution and a management-level director of a railroad that is a member of a certifying body. Institutions typically obtain preliminary certification for one to two two-year periods at no fee. To obtain and maintain five-year full certification, institutions must also have offered the railroading degree program for at least two years immediately before application, remit a certification fee, complete a self-study, and host a site visit by a certification team.

Students' Options for Completing the Degree. In general, colleges offering the degree require the equivalent of one semester's "residency," or enrollment at the degree-granting institution, and allow students to transfer remaining credits from other institutions. Therefore, a student can complete general education courses at a college that doesn't offer the degree, the railroad-specific courses at a college that offers the general degree but no craft-specific options, and craft-specific education and training at an institution that offers them. This flexibility allows students from various locations, with a variety of resources and scheduling requirements, to earn their degrees in places and at paces that suit them.

Railroad Industry Needs. Challenged by competition throughout the transportation industry, North American railroads have spent the past several decades improve their operations--responding to customers' needs, employing new technologies, and streamlining procedures. Some of the changes railroads made meant that fewer employees were needed, so hiring slowed substantially. In the last 20 years, for example, some major railroads reduced their workforces by more than 50 percent. While many senior employees elected early retirements, many others stayed on. Over the next decade, these experienced workers will retire en masse, vacating jobs that must be filled.

At the same time, many changes that railroads have made require new skills for their employees. Clerks, for example, once worked largely behind the scenes, handling the paper that tracked a shipment. Today, they have been replaced by customer service representatives, who reach out to their clients and actively identify and implement improvements in service. New technology reaches into every railroad operation and requires new knowledge among installers, maintainers, and operators. Legislation and industry standards require new skills for compliance. Changes in hiring practices--for example, hiring system-wide rather than regional and seasonal maintenance of way personnel--bespeak a commitment to the full-time, permanent employee and his or her productivity.

Once barely keeping up with inflation, gains in market share for the rail industry are expected to increase. Agreements with truck, shipping, and barge lines allow railroads to offer "seamless" transportation to their clients. Improved service and reliability make railroads a viable option for those shipping time-sensitive, fragile, or otherwise "high margin" goods. However, more business requires more railroad employees. As a vice president with one major railroad put it, "Right now, we don't have a single extra employee. We're at the limit of the business we can handle. If we ship more freight, we need more people to do the work."
The result is a complex, industry-wide need for education and training. All employees need solid basic skills--reading, writing, arithmetic. New hires, conservatively estimated

at 15,000 per year,* must also learn general railroad operations and the technical crafts in which they will work. Existing employees must learn new procedures and technologies to stay current in their crafts.

How the Degree Came About. In 1992, the teams of Burlington Northern Railroad/Johnson County Community College and Union Pacific Railroad/Salt Lake Community College implemented associate of applied science degrees in railroad electronics. These programs demonstrated that standard community college offerings could be arranged in curricula to meeting railroad industry needs, and they have produced many successful graduates.

In the spring of 1993, representatives from seven Class I North American railroads and two community colleges met at Burlington Northern Railroad's Technical Training Center on the campus of Johnson County Community College to discuss creating associates' degrees in railroad operations. The group drafted a list of competencies they would expect from graduates and reviewed a draft curriculum prepared by Johnson County Community College. Over that summer, they discussed the competencies and curriculum in their organizations and met again in the fall, with three more colleges represented, to agree on final competencies and curriculum guidelines. The curriculum included four railroad-specific courses to address special competencies; those courses were assigned to four development teams. In the spring of 1994, the group met again to review progress, adding four more colleges, and reviewed a draft of industry certification standards and processes. The group continued to meet three times in 1995, adding more educational institutions at each meeting, to approve certification standards, affiliate with the Railroad Personnel Association administered by the Association of American Railroads, and develop informational and promotional materials. Beginning in 1996, the group will meet annually to review program implementation.

The Future. The success of the degree program depends on railroad industry support, a pool of interested students, and top-quality education and training to bring the two together. To date, support throughout the railroad industry has been resounding. Students are attracted not only by the romance of railroading traditions but also by an industry moving quickly to the fore, an industry that can offer employment with many rewards. The curriculum and certification standards and processes ensure that colleges who offer the degree meet the needs of both their clients--potential employers and potential employees. In short, everyone benefits: students, colleges, railroads, and, ultimately, the customers who ship their goods by rail.

*Based on conservative estimates of 2.5 percent annual attrition and 2.5 percent industry growth against a workforce of 300,000 as measured by the American Association of Railroads.

Sponsoring Railroads.

Burlington Northern
Canadian National
Canadian Pacific
Conrail
CSX
Norfolk Southern
Southern Pacific
Union Pacific

Partial List of Educational Institutions Offering or Intending to Offer the Degree.

Carl Sandburg College, Galesburg, Illinois (has obtained preliminary certification)
Cegep Andre-Laurendeau, Lasalle, Quebec
Clayton State College, Morrow, Georgia
Florida Community College, Jacksonville, Florida
Johnson County Community College, Overland Park, Kansas
La Commission Scolaire, Lasalle, Quebec
Montana State University North, Havre, Montana
Pellissippi State Technical College, Knoxville, Tennessee
Richard J. Daley College, Chicago, Illinois
St. Paul Technical College, Saint Paul, Minnesota
Salt Lake Community College, Salt Lake City, Utah
Tarrant County Junior College, Fort Worth, Texas
Tidewater Community College, Norfolk, Virginia
Virginia Western Community College, Roanoke, Virginia
Western Iowa Technical Community College, Sioux City, Iowa
Western Nebraska Community College, Alliance, Nebraska

Funding the JCCC/BN Cooperative

Agreements of various kinds have been adopted as the partnership has grown.

Fixed Quarterly/Semiannual Expenses Paid by BN and Reimbursed by JCCC. Initial construction was financed by ten-year industrial revenue bonds issued by the City of Overland Park. BN makes quarterly payments to the city to retire the bonds, and JCCC makes quarterly payments to reimburse BN for its share--36 percent of the initial building. Payments are required at least semiannually. Initial construction bonds were issued in December 1986 and will be retired in December 1996. Thereafter, ownership of the initial building reverts to JCCC, and BN may lease training space at a fee to be

determined for three additional five-year terms (the first beginning December 1996, the second beginning December 2001, and the third beginning December 2006).

Construction bonds for an expansion of the building were issued in June 1991 and will be retired in June 2001. BN makes semiannual payments to the city and is reimbursed by JCCC for its 45 percent share. As with the initial building, after the bonds are retired, ownership of the expanded space reverts to JCCC, and BN may lease it from JCCC at a fee to be determined for three additional five-year terms (the first beginning June 2001, the second beginning June 2006, and the third beginning June 2011).

Fixed Monthly Expenses Billed by JCCC and Paid by BN. JCCC and BN divide actual direct operating costs including costs for utilities, janitorial services, sewer, repairs, and maintenance according to percentages of building use (measured in square feet): 64 percent-BN, 36 percent-JCCC for the initial building and 52 percent-BN, 48 percent-JCCC for the expansion.

JCCC assigns a fee per square foot for the initial building ($2.99 for 1995) and the expansion ($2.50 for 1995) by allocating the previous year's operating expenses to the percentages of space used by each party. The 1995 annual operating expenses are as follows:

	Initial Building	Expansion	Total
Total square footage	50,219	68,436	118,655
% BN	64%	52%	
% JCCC	36%	48%	
BN allocation	32,140	35,587	67,727
Fee per square foot	$2.99	$2.50	
Annual amount due	$96,098.60	$88,967.50	$185,066.10
Monthly BN payment	$8,008.22	$7,413.96	$15,422.18

JCCC maintains public liability insurance on the ITC, and BN and JCCC separately insure the furnishings and equipment they own. The City of Overland Park requires that BN and JCCC maintain fire, casualty, and property insurance on the ITC until the bonds are retired, which they share according to facility use. The following are the property insurance expenses for the period 1993-94, which totalled $1,427.55. 1994-95 insurance expenses are estimated to be comparable.

	Initial Building	Expansion	Total
Total square footage	50,219	68,436	118,655
% BN	64%	54.6%	
% JCCC	36%	45.4%	
BN allocation	32,140	37,366	69,506
Property insurance	$927.62	$1,527.25	$2,454.87
BN payment	$593.67	$833.88	$1,427.55

Instructional Design and Support Through JCCC Business and Industry Institute. JCCC assigns some instructional design and support staff to BN according to BN's needs. These staff members serve in BN's Training Systems Development group. BN pays these staff members' salaries and benefits plus eight percent to cover JCCC's administrative costs in proportion to the time they are assigned to BN. Totals for 1994-95 were $1,233,737.

Cost for Credit Instruction to JCCC. JCCC provides courses for credit commissioned by the National Academy. The original intent was that the college was to be "made whole" for the direct cost of the programs. The following formula was used to calculate those direct costs:

Total supply cost, plus
Total faculty cost, including benefits, plus any overload
Minus total tuition paid by BN for the classes
Minus credit for any JCCC students enrolled in BN classes
Minus any state reimbursement received
Difference to be reimbursed to JCCC

For 1994-95:	Salaries and benefits	$514,891
	Overload (estimate)	27,500
		$542,391
	Tuition (estimate)	350,000
	Reimbursement (estimate)	< $192,391 >

Associate of Science Degree Support. Burlington Northern has been instrumental in sponsoring an effort to institute the A.S. degree in Railroad Operations both here on campus and nationally. A project manager has been retained on behalf of the National Academy to finalize the process. JCCC, as indicated, will now sponsor a full-time director and secretary to oversee the program. The Academy and JCCC have literally set the standard for railroad training nationally.

To encourage the college's effort to create a pool of A.S. candidates, the National Academy has indicated a willingness to hire a full-time instructor to teach the four railroad courses outlined in the degree. The college plans to staff that position full-time in the fall of 1995. Cost for that position is estimated at $46,206 including benefits. In addition, NARS has indicated a willingness to pay for advertising this program.

Cost for Center Instruction to the National Academy. JCCC has commissioned the National Academy for Railroad Sciences (NARS) to teach selected courses in railroad conducting and railroad dispatching as part of the JCCC A.S. degree in Railroad Operations. JCCC will pay NARS the sum of $500 per student week for that training.

JCCC expects six conductor and four dispatcher classes to be offered in 1994-95 for an estimated 521 weeks. At $500 per student week, JCCC could, in turn, reimburse NARS $260,500 during the 1994-95 academic year. Students will be required to pay all of these costs, but presently receive scholarships from BN which cover most of them.

Student Scholarships through the JCCC Foundation. Burlington Northern offers student scholarships for those students who are enrolled in the dispatcher and conductor options of JCCC's A.S. degree in Railroad Operations. These scholarships help students defray the cost of tests and exams, tuition and fees, and some of the costs associated with required off-campus training. The scholarships amount to $3,000 for each conductor student and $11,900 for each dispatcher student. Assuming there are 72 conductor students and 48 dispatcher students in the 1994-95 academic year, the estimated cost would be $216,000 and $571,200 respectively.

Gifts and Donations from BN to JCCC. Other than the scholarships, BN makes several annual contributions to JCCC that it voluntarily remits from time to time. These include support of Cultural Education Center series of events, outstanding faculty awards, and the Some Enchanted Evening fund-raising event. BN donated $3,500 to the support of a recent bond referendum. These contributions have amounted to $21,000 this year alone.

Summary. 1994-95 Burlington Northern Expenditure to JCCC:

Building Cost	$736,058
Maintenance	185,066
Insurance	1,428
Contract Employees	1,223,738
Associate Degree Support	
Credit Courses	
Tuition	350,000
Supplies (estimated)	110,000
Reimbursement for Direct Cost	192,391
Instruction (4 new courses)	46,206
Advertising	10,000
Foundation	
Scholarships	787,200
Awards	7,500
Sponsorships	13,500
	$3,642,087
JCCC Retained Revenue:	
Administrative Fee to B&I	$ 76,076
Foundation	24,800
Tuition, Kansas Students (estimated)	9,720
	$110,598 *

*Rent for the first building will eventually be added to this total.

Impact and Reflections of the Partnership

The national attention that the Johnson County Community College/Burlington Northern Railroad partnership has been given is phenomenal; not a week has gone by without some kind of inquiry or visit. The program was recognized by AACC as one of the nation's best and as recently as April of 1995, the program gained yet more kudos when Secretary of Labor Robert Reich alluded to it as a model cooperative program between education and industry. America's success in meeting the challenges of uncertain but far-reaching, change will depend on how public and private sectors work together to guarantee a workforce that is skilled and productive. As shown, the relationship between JCCC and BN has done that and may even be the catalyst for establishing competency criteria for employment in the nation's railroads.

The local economic development impact of more than $40 million is substantial; yet, of all things associated with the cooperation, this is the one area that people either take for granted or ignore altogether. Many people this partnership negatively and as a taxpayer subsidy to this industry. They forget that the buildings will eventually become the property of JCCC or, for that matter, that JCCC will be collecting rent in the near future on these buildings. BN, on the other hand, gets the sense at times of dealing with a college with its hand always out.

The development of the concept of the National Academy of Railroad Sciences can have far-reaching impact if promoted. It could truly become a national center for railroad training and a major source for employees for the nation's railroads. If the A.A.S. becomes a standard for employment, and this very well may happen, community colleges will benefit as major players in helping to upgrade the criteria for employment in the railroad industry. BN would be able to charge for some training as part of NARS and thus subsidize the BN training. Ed Butt, director of Technical Training for Burlington Northern, has expressed that his company's senior management must expect revenue to produce an acceptable return on investment. Because the bottom line can be positively affected by productivity increases in the workforce, employees who can utilize new technology to the fullest and who can adapt to the ever-changing business environment are critical. Thus, employee education and training becomes the key to a successful corporation. What is true for BN is true for all of the nation's railroads. People must be educated and trained because they represent a fundamental resource for maintaining the economic health of the nation and the companies for which they work. We all know this, and we know we can sell the training, yet the National Academy of Railroad Sciences is proceeding very slowly.

Someone reported that when Roger Smith, former CEO of General Motors, was asked why GM didn't work more with higher education, he replied that it was difficult. He reported that the speed at which higher education works was deceptive; it was slower than one might think. Advocates like to imply that community colleges move quickly and are without the large bureaucracies of the university, but when compared to how quickly a company moves once it has made a decision, community colleges also move at a snail's pace. BN has found this to be so at times. Windows of opportunity are open for only a short period of time. That works both ways, however.

There are myths associated with any public and private partnership. One of the biggest myths has to be that the company has unlimited funds and that it will be willing to support any and all college projects. In truth, the company seeks best return on investment and cost is always a factor. Another myth suggests that unlimited grants will

be available to support the public/private venture, particularly if jobs are promised. There are, in reality, few opportunities for outside support of partnership ventures. A last myth suggests that all people will appreciate efforts to enhance the college by working closely with a corporation or to enhance corporate training by working closely with a college. Some people at JCCC still fear that the college has become Choo Choo U. and suggest that the tail (the BN program) is wagging the dog. Many people at BN question any attempt to change traditional hiring practice, and many are threatened by tying employment to education.

The future, however, should hold great promise for this cooperative effort. The college and the corporation have been at this for some time. People have debunked the myths and know that a true partnership has to be productive for both entities and also be cost effective. Hard work, not wishful thinking, is the key to successful partnerships. Private industry and public education must work together to allow increasing numbers of individuals to move into the economic mainstream of American life through employment tied to training. Colleges and corporations can make that happen better by working together than by working alone. The partnership between Burlington Northern Railroad sand Johnson County Community College is, indeed, an exemplary model.

June 8, 1995
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Organization/Address: Johnson County Community College, 12345 College Blvd., Overland Park, KS 66210	Telephone: 913-469-3875 FAX: 913-469-4475
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